

Linde Hydraulics introduces the next generation of control valves to the market

- **Modular system consisting of a Monoblock and additional sections for customer-specific requirements**
- **Innovative float function for the Excavator can be used as “Smart Boom”**
- **Efficient serial Rod-to-Head-Regeneration for the realization of high actuator speeds**
- **Significantly less flow loss compared to conventional valves due to optimized flow channel design**

Aschaffenburg, 15 September 2021 – Linde Hydraulics GmbH & Co. KG introduces its next generation of control valves. The new valve block VW 22/18 M5-03 for the open circuit is characterized by its modular system, whereby the Monoblock with five sections plus pressure relief section represents the basic set-up. Optionally, three additional sections can be added on each side of the block, thus specifically addressing customer needs.

Various functions can be selected for the additional sections, which are perfectly designed for the requirements in a wheeled excavator. In addition to proven options such as Boom or Lift- Regeneration, Anti-Drift and Return Flow Bypass, Linde Hydraulics now also offers Rod-to-Head-Regeneration and an innovative Float Function for the Excavator for the first time.

Option Float Function:

The Float Function has since been used mainly in applications with excavating functions, for example in the lift or bucket of a wheel loader – now it can also be used in excavators without much effort.

In conventional control valves, the actuator is fixed. In this way, it is rigid and cannot adapt to external conditions. In certain applications, however, it is desired that a cylinder yields to external forces by being able to retract and extend – the so-called floating function. This is particularly important when either increased wear of the attachment on a hard surface or damage to a sensitive surface by the attachment

is to be avoided. A typical example is the unloading of bulk material on a ship, where damage to the deck is to be avoided.

In the context of control valves, the term "float" refers to the floating cylinder that can move without resistance due to tank relief on both sides. Thus, the function can enable a smooth workflow and less wear of the material.

Through an innovative solution, Linde Hydraulics implements the float function in the excavator with only a small additional piston in the valve. Compared to conventional solutions, the implementation is thus more space-saving and can also be used at lower speeds.

Option Rod-to-Head-Regeneration:

Rod-to-Head-Regeneration is used for cylinder functions with high flow and high actuator speed at a simultaneous low pressure level, for example in the excavator's stick.

In an excavator, when the operator uses the joystick for fast and light movements, the full pump flow would be needed in conventional systems. This is exactly the effect that Rod-to-Head-Regeneration avoids and it eliminates the need for high pump flow.

The pump only needs to provide the differential flow between the rod and the head. Any additional pump flow above this amount now has a positive effect on the speed of movement of the cylinder. In this way, much more dynamic movements are possible with less pumping in the system. As soon as the load on the cylinder increases, the Rod-to-Head-Regeneration is automatically switched off.

Option Return flow bypass:

Symmetrical valves with return bypass are used when functions are operated for long periods and require high flow rates – for example, travel drives in mobile excavators. A large part of the volume flow here is directed through the return tank bypass, which is controlled by a simple pin, via the reloading valves into the tank - and without significant flow losses. This allows noticeable fuel savings compared to conventional valves.

In addition, with this function, the make-up valves can draw additional required volume flow from the tank during downhill travel, thus avoiding cavitation.

Option Anti Drift:

Anti Drift is used in lifting functions when a specific position must be secured and guaranteed to be held for a longer period – for example, in the crane operation of an excavator. The Anti Drift function uses an additional valve to prevent the leakage that occurs in conventional control valves. This valve is located between the control piston and the actuator and provides a seal depending on the actuation of the section.

Option Boom or Lift-Regeneration:

Boom or Lift-Regeneration is used for lifting functions, such as the boom of the excavator. In this function, the weight force is used during lowering and the oil flow from the return of the lifting cylinder is partially diverted to the opposite side. In this way, the flow required here is already provided largely without pumping. In addition, the tendency to cavitate is eliminated. The flow saved in this process is thus directly available for other functions.

"The extent to which a hydraulic valve as a core component of the excavator determines not only function and performance, but also the fuel consumption of the overall vehicle, was demonstrated by us at an initial pilot customer. Consumption savings of up to 10% were seen in the field test," explains Dr. Matthias Schreiber, CEO of Linde Hydraulics.

The third generation of valve technology is a suitable complement to the existing second generation (three sections) due to the compact five sections monoblock and is also perfectly matched to the wheeled excavator.

The control valve is available in two nominal sizes: nominal size 18 with a max. flow rate of 250 l/min and size 22, which allows a max. flow rate of 350 l/min.

In the monoblock, Linde Synchron Control (LSC) is used as standard (post-compensated), while a choice can be made between pre- and post-compensated for the option sections. Both hydraulic and electro-hydraulic controls are possible.



Pressemitteilung. Press Release.

The valve block is already in use at a pilot customer in a wheeled excavator and can also be used for material handlers.

– About Linde Hydraulics –

Linde Hydraulics is a global manufacturer of hydraulic and electronic drive systems. As a technology leader in the field of high- and medium-pressure hydraulics, Linde Hydraulics sets standards with its systems for significant reductions in fuel consumption and CO2 emissions. The product range includes hydraulic pumps, motors and valves as well as electronic controls and peripherals. Linde Hydraulics is a development partner and supplier to renowned manufacturers of mobile machinery, such as agricultural, construction, mining, forestry and municipal machinery, as well as industrial machinery manufacturers. Founded in 1904, the company is headquartered in Aschaffenburg, Germany. Around 1,400 employees work at six production sites in Germany, China and the USA, as well as at subsidiaries in Europe, the USA, South America and China. With a dense network of around 80 sales and service partners, Linde Hydraulics is represented in over 50 countries.

Press contact:

Linda Geis
Corporate Communications Expert
Tel.: +49 6021 150-14216
E-Mail: linda.geis@linde-hydraulics.com
Wailandtstrasse 13
63741 Aschaffenburg